Geneva Energy Maine, LLC
Franklin County
Strong, Maine
A-342-71-M-N (SM)

Departmental
Findings of Fact and Order
Air Emission License

After review of the air emissions license application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., §344 and §590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

Geneva Energy Maine LLC (Geneva Energy) has submitted an application to operate an existing wood fired boiler and a new wood chip dryer for the processing of wood pellets. The previous license under J & L Electric, formerly Forster manufacturing, for the boiler at the Strong facility expired, therefore this is considered a new license. Geneva Energy Maine LLC is the owner of the facility and Strong Green Energy LLC will be the on-site entity, responsible for managing the operations.

B. Emission Equipment

The following equipment is addressed in this air emission license:

Fuel Burning Equipment

Equipment	Maximum Capacity (MMBtu/hr)	Maximum Firing Rate (lb/hr)*	Fuel Type	Pollution Control Equipment	Stack #
Boiler 1	33.7	9361	wood	multiclone	1

* Based on 3600 Btu/lb wet wood/bark

Process Equipment

Equipment	Max. Raw Material Process Rate	Max. Finished Material Process Rate
Dryer 1	19.8 tons/hr	12 tons/hr

C. Application Classification

A new source is considered a major source based on whether or not expected emissions exceed the "Significant Emission Levels" as defined in the Department's regulations. Emissions for the new source are determined by the maximum future license allowed emissions, as follows:

Pollutant	Max. Future License (TPY)	Sig. Level
PM	24.4	100
PM_{10}	24.4	100
SO_2	3.1	100
NO_x	22.95	100
CO	76.5	100
VOC	49.9	50

The Department has determined the facility is a minor source and the application has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 CMR 115 (last amended December 24, 2005). With the fuel limit on the boiler and the total VOC limit on the dryer, the facility is licensed below the major source thresholds and is considered a synthetic minor.

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 CMR 100 (last amended December 24, 2005). Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in 06-096 CMR 100. BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

Process Description

The Geneva Energy facility will receive wood at the storage area. The wood will then be debarked, chipped, and conveyed to a screen. Bark from the debarker and any fines from the screens will be conveyed to the boiler silo. The silo fuel may be supplemented by purchased chips.

The wood chips continue from the screens to a 'wet' surge bin and are metered into the dryer. The wood chips go through the dryer and then are transferred directly to either a grinder or a 'dry' surge bin.

The dry wood chips are ground to sawdust and go directly to the pelletizer. The pellets are vacuumed from the pelletizer and go through a tumbler to remove fines. These fines are returned to the pelletizer infeed. The finished pellets are conveyed to two 120 ton silos.

The pellets are conveyed to the 'form, fill, and seal' automatic bagging system. The automatic bagging system unitizes the 40 pound bags and wraps them in one ton units on pallets. The pallets are readied for truck loading by forklift at the loading dock.

B. Boiler #1

Boiler #1 was manufactured in 1980 and has a maximum capacity of 33.7 MMBtu/hr burning wood waste. It will be operated for heating, hot water, steam for the dryer, and steam for the turbine. The turbine turns a 1.25 megawatt generator. The flyash from the boiler is controlled by a multicyclone.

The boiler's main fuel will include bark and screen fines, with supplemental purchased wood chips if necessary. The wood waste and chips are automatically fed to the boiler through a conveyer. The feed rate is governed by steam demand and excess oxygen requirements. The boiler may also fire specification waste oil generated on-site, not to exceed 60 gallons per month. The specification waste oil shall meet the definition in *Waste Oil Management Rules*, 06-096 CMR 860.

The boiler was manufactured and installed in 1980, and is therefore not subject to the New Source Performance Standards (NSPS) 40 Code of Federal Regulations (CFR) Part 60, Subpart Dc for steam generating units greater than 10 MMBtu/hr manufactured after June 9, 1989.

BACT Findings

Geneva Energy submitted a BACT analysis for controlling boiler operations which includes the use of an Alan Bradley programmable logic controller PLC to control the automatic boiler fuel feed, an oxygen monitor on stack to monitor boiler combustion efficiency, a smoke meter in stack to monitor opacity, and an induced draft fan on the boiler exhaust. Manual controls include a multicyclone collector for flyash, propane pre-fire for cold start-up to reduce emissions, and a stack economizer to increase efficiency of boiler.

Geneva Energy shall meet the following BACT emission limits, based on a fuel heat content of 3600 Btu/lb wood (55% moisture):

PM/PM_{10} – 0.3 lb/MMBtu, per *Fuel Burning Equipment Particulate Emission Standard,* 06-096 CMR 103 (last amended January 24, 1983), and 10.1 lb/hr.
SO_2 – combustion of wood, 0.04 lb/MMBtu and 1.4 lb/hr
NO_X – good combustion and previous license limit, 0.3 lb/MMBtu and 10.1 lb/hr
CO – good combustion and previous license limit, 1.0 lb/MMBtu and 33.7 lb/hr
VOC – good combustion and previous license limit, 0.06 lb/MMBtu and 2.0 lb/hr
Opacity – not to exceed 30% opacity on a 6 minute block average basis, except for no more than two 6 minute block averages in a 3 hour period, per *Visible Emissions Regulations*, 06-096 CMR 101 (last amended May 18, 2003).

The boiler shall be limited to 21,000 tons wood/year based on 3600 Btu/lb (or equivalent), on a 12 month rolling total.

Geneva Energy shall keep maintenance logs on the multiclone. The log entries shall include details on malfunctions and routine maintenance (i.e. time, date, any corrective actions taken).

C. Dryer #1

Dryer #1 is a Bruks Klockner bed dryer. It is a low temperature dryer with controlled air supplied during continuous feeding and continuous moisture monitoring. Chips between ¾ inch to 1 inch are expected to be used to minimize the opportunity for fine wood particles to be carried away in the exhaust air. In addition, the dryer is designed for minimal particulate emissions.

An infeed auger spreads the material evenly across the dryer's entire width. A hot air flow of 80ºC - 110ºC (176ºF - 230ºF) from a tube system below passes through the slowly moving bed of material. The moisture content of the bed increases

from the bottom of the material bed to the top. The top layer of moist material over the dryer's whole length provides for control of particulate matter. The top layer, which is too wet to pelletize, is skimmed off at the end by a vertically adjustable auger and returned to the beginning of the dryer. The auger's vertical position is controlled by a hygrometer which continuously monitors the desired moisture of the end product. The wet top layer is expected to be about 3-4 inches deep. The overall depth of material in the bed is expected to be from 31-39 inches.

Geneva Energy submitted information on the dryer, including test results. Based on these test results, Geneva Energy shall meet the following emissions limits from the dryer (total for all roof ducts):

PM	0.34 lb/hr
VOC	13.7 lb/hr

To remain a minor source, Geneva Energy shall limit VOC emissions from the dryer to 45.4 tons/year.

For particulate control, Geneva Energy shall ensure that there is a continuous wet moisture layer across the entire dryer at the proper depth to minimize particulate emissions.

Geneva Energy shall perform PM and VOC stack tests on the dryer within six months of start-up. Based on the test results, the dryer limits may be revised.

D. Pelletizer

The pelletizer consists of two rotating dies that interlock. The pellets are formed through extrusion which results in heat and evaporation of moisture, and the pellets reach a temperature of 120ºF. Once the pellets are produced, they are picked up by the vacuum system and moved to the tumbler and screening process. The tumbling and screening process removes the fines and sharp edges from the pellets. The screened fines are put back into the pelletizing process for reuse. Process cyclones control particulate matter.

E. Bagging and Shipping

The form, fill, and seal bagger is a fully automatic system in which the pellets end up in bags made from rolls of polyethylene pre-printed center-folded film. The bags are then stacked on a pallet in one ton units and wrapped by an automated system. A forklift removes the unitized pallets to the shipping area.

F. General Process Emissions

BACT for the wood handling and transfer systems shall be the use of cyclones to control particulate emissions. Visible emissions from these general process sources, including the cyclones, screening operation, pelletizer operation, fuel/wood material conveying systems, and the pellet bagging operations, shall not exceed an opacity of 20% on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 1-hour period, per 06-096 CMR 101.

G. Fugitive Emissions

Visible emissions from a fugitive emission source (including fuel/feed stockpiles and roadways) shall not exceed an opacity of 20%, except for no more than five (5) minutes in any 1-hour period. Compliance shall be determined by an aggregate of the individual fifteen (15)-second opacity observations which exceed 20% in any one (1) hour, per 06-096 CMR 101

H. Annual Emissions

Geneva Energy shall be limited to the following annual emissions, based on a 12 month rolling total, and calculated from an annual fuel limit of 21,000 tons/year wood waste (55% moisture) and dryer emissions:

Total Licensed Annual Emissions for the Facility
Tons/year
(used to calculate the annual license fee)

	PM	**PM_{10}**	**SO_2**	**NO_x**	**CO**	**VOC**
Boiler	22.7	22.7	3.0	22.7	76.5	4.5
Dryer	1.5	1.5	-	-	-	45.4
Total TPY	**24.2**	**24.2**	**3.0**	**22.7**	**76.5**	**49.9**

III. AMBIENT AIR QUALITY ANALYSIS

According to 06-096 CMR 115, the level of air quality analyses required for a minor new source shall be determined on a case-by case basis. Modeling and monitoring are required if the total emissions of any pollutant released meet or exceed the following:

Pollutant	Tons/Year
PM	25
PM_{10}	25
SO_2	50
NO_x	100
CO	250

Based on the information available in the file, and the similarity to existing sources, and the license tons/year limits, Maine Ambient Air Quality Standards (MAAQS) will not be violated by this source.

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-342-71-M-N subject to the following conditions.

Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

STANDARD CONDITIONS

(1) Employees and authorized representatives of the Department shall be allowed access to the licensee's premises during business hours, or any time during which any emissions units are in operation, and at such other times as the Department deems necessary for the purpose of performing tests, collecting samples, conducting inspections, or examining and copying records relating to emissions (38 M.R.S.A. §347-C).

(2) The licensee shall acquire a new or amended air emission license prior to commencing construction of a modification, unless specifically provided for in Chapter 115. [06-096 CMR 115]

(3) Approval to construct shall become invalid if the source has not commenced construction within eighteen (18) months after receipt of such approval or if construction is discontinued for a period of eighteen (18) months or more. The Department may extend this time period upon a satisfactory showing that an extension is justified, but may condition such extension upon a review of either the control technology analysis or the ambient air quality standards analysis, or both. [06-096 CMR 115]

(4) The licensee shall establish and maintain a continuing program of best management practices for suppression of fugitive particulate matter during any period of construction, reconstruction, or operation which may result in fugitive dust, and shall submit a description of the program to the Department upon request. [06-096 CMR 115]

(5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 M.R.S.A. §353. [06-096 CMR 115]

(6) The license does not convey any property rights of any sort, or any exclusive privilege. [06-096 CMR 115]

(7) The licensee shall maintain and operate all emission units and air pollution systems required by the air emission license in a manner consistent with good air pollution control practice for minimizing emissions. [06-096 CMR 115]

(8) The licensee shall maintain sufficient records to accurately document compliance with emission standards and license conditions and shall maintain such records for a minimum of six (6) years. The records shall be submitted to the Department upon written request. [06-096 CMR 115]

(9) The licensee shall comply with all terms and conditions of the air emission license. The filing of an appeal by the licensee, the notification of planned changes or anticipated noncompliance by the licensee, or the filing of an application by the licensee for a renewal of a license or amendment shall not stay any condition of the license. [06-096 CMR 115]

(10) The licensee may not use as a defense in an enforcement action that the disruption, cessation, or reduction of licensed operations would have been necessary in order to maintain compliance with the conditions of the air emission license. [06-096 CMR 115]

(11) In accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department, the licensee shall:

A. perform stack testing to demonstrate compliance with the applicable emission standards under circumstances representative of the facility's normal process and operating conditions:

1. within sixty (60) calendar days of receipt of a notification to test from the Department or EPA, if visible emissions, equipment operating parameters, staff inspection, air monitoring or other cause indicate to the Department that equipment may be operating out of compliance with emission standards or license conditions; or
2. pursuant to any other requirement of this license to perform stack testing.

B. install or make provisions to install test ports that meet the criteria of 40 CFR Part 60, Appendix A, and test platforms, if necessary, and other accommodations necessary to allow emission testing; and

C. submit a written report to the Department within thirty (30) days from date of test completion.

[06-096 CMR 115]

(12) If the results of a stack test performed under circumstances representative of the facility's normal process and operating conditions indicate emissions in excess of the applicable standards, then:

A. within thirty (30) days following receipt of such test results, the licensee shall re-test the non-complying emission source under circumstances representative of the facility's normal process and operating conditions and in accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department; and

B. the days of violation shall be presumed to include the date of stack test and each and every day of operation thereafter until compliance is demonstrated under normal and representative process and operating conditions, except to the extent that the facility can prove to the satisfaction of the Department that there were intervening days during which no violation occurred or that the violation was not continuing in nature; and

C. the licensee may, upon the approval of the Department following the successful demonstration of compliance at alternative load conditions, operate under such alternative load conditions on an interim basis prior to a demonstration of compliance under normal and representative process and operating conditions.

[06-096 CMR 115]

(13) Notwithstanding any other provisions in the State Implementation Plan approved by the EPA or Section 114(a) of the CAA, any credible evidence may be used for

the purpose of establishing whether a person has violated or is in violation of any statute, regulation, or Part 70 license requirement. [06-096 CMR 115]

(14) The licensee shall maintain records of malfunctions, failures, downtime, and any other similar change in operation of air pollution control systems or the emissions unit itself that would affect emission and that is not consistent with the terms and conditions of the air emission license. The licensee shall notify the Department within two (2) days or the next state working day, whichever is later, of such occasions where such changes result in an increase of emissions. The licensee shall report all excess emissions in the units of the applicable emission limitation. [06-096 CMR 115]

(15) Upon written request from the Department, the licensee shall establish and maintain such records, make such reports, install, use and maintain such monitoring equipment, sample such emissions (in accordance with such methods, at such locations, at such intervals, and in such a manner as the Department shall prescribe), and provide other information as the Department may reasonably require to determine the licensee's compliance status. [06-096 CMR 115]

SPECIFIC CONDITIONS

(16) **Boiler #1 (33.7 MMBtu/hr – wood fired)**

A. Emissions from Boiler #1 shall not exceed the following:

Pollutant	lb/MMBtu	Origin and Authority
PM	0.3	06-096 CMR 103(2)(B)(4)(a)
PM_{10}	0.3	06-096 CMR 103(2)(B)(4)(a)
NO_X	0.3	06-096 CMR 115, BACT

B. Emissions from Boiler #1 shall not exceed the following [06-096 CMR 115, BACT]:

PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
10.1	10.1	1.4	10.1	33.7	2.0

C. Visible emissions from Boiler #1 shall not exceed 30% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a continuous 3-hour period. [06-096 CMR 101]

D. Fuel use shall not exceed 21,000 tons/yr wood waste (3600 Btu/lb, 55% moisture), or equivalent. Fuel use records shall be maintained on a monthly basis, in addition to the 12 month rolling total. A description of the method used to calculate fuel use shall be submitted to the Bureau of Air Quality within 30 days of the issuance of this license. [06-096 CMR 115, BACT]

E. Geneva Energy may mix specification waste oil with the wood waste residue fired in the wood fired boiler. The specification waste oil use shall not exceed 60 gallons/month. Records shall be maintained documenting the gallons of specification waste oil fired each month.

Geneva Energy may mix oily rags with the wood waste residue fired in the wood fired boiler. The oily rags must originate from the facility and the permeated oil must meet the requirements of specification waste oil. Geneva Energy shall maintain records of the amount of oily rags burned each month (ie – a full 55 gallon drum full, ½ drum, etc).

An analysis of a representative waste oil sample shall be kept on site. If there are changes in the process or if there are changes in the maintenance garage that may effect the composition of the waste oil collected, a new representative sample shall be tested. These test results shall be kept on-site and a copy shall be submitted to the Bureau of Air Quality.

[06-096 CMR 115, BACT and 06-096 CMR 860]

(17) **Dryer #1**

A. Emissions from the Dryer's ducts shall not exceed the following totals [06-096 CMR 115, BACT]:

PM (lb/hr)	PM_{10} (lb/hr)	VOC (lb/hr)
0.34	0.34	13.7

B. Visible emissions from the dryer exhaust points shall not exceed 20% opacity on a 6-minute block average basis, except for no more than one 6-minute block average in a 3-hour period. [06-096 CMR 101]

C. Geneva Energy shall ensure that there is a continuous wet moisture layer across the dryer at the proper depth to minimize particulate emissions and that the dryer will be operated within the manufacturers recommended temperature range. A compliance monitoring plan shall be submitted to the Department within 60 days of the issuance of this license detailing how these requirements

will be met, including a proposal of a minimum wet moisture layer depth. [06-096 CMR 115, BACT]

D. Geneva Energy shall limit VOC emissions from the dryer to 45.4 tons/year. A description of the method used to calculate compliance with the VOC tons/year limit shall be submitted to the Bureau of Air Quality within 30 days of the issuance of this license [06-096 CMR 115, BACT]

E. Geneva Energy shall record each startup, shutdown, and malfunction event including start time, end time, duration, cause, and method utilized to minimize the duration of the event and/or to prevent a reoccurrence. [06-096 CMR 115]

(18) **Stack Testing**

Within six months of start-up, Geneva Energy shall perform PM and VOC stack tests on Dryer #1 and a PM stack test on Boiler #1 in accordance with the appropriate EPA test method. [06-096 CMR 115, BACT]

(19) **General Process Sources**

Visible emissions from any general process source (including the fuel/wood material conveying systems, the screening operation, the pelletizer operation, and the pellet bagging operations) shall not exceed an opacity of 20% on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 1-hour period. [06-096 CMR 101]

(20) **Fugitive Emissions**

Visible emissions from fugitive emission sources located at the facility (including fuel/feed stock stockpiles and roadways) shall not exceed 20% opacity, except for no more than five (5) minutes in any 1-hour period. Compliance shall be determined by an aggregate of the individual fifteen (15)-second opacity observations which exceed 20% in any one (1) hour. [06-096 CMR 101]

(21) **Malfunction and Breakdown**

Geneva Energy shall notify the Department within 48 hours and submit a report to the Department on a quarterly basis if a malfunction or breakdown in any component causes a violation of any emission standard (38 MRSA §605).

(22) **Annual Emission Statement**

In accordance with *Emission Statements*, 06-096 CMR 137 (last amended July 6, 2004), the licensee shall annually report to the Department the information necessary to accurately update the State's emission inventory by means of:

1) A computer program and accompanying instructions supplied by the Department;

   or

2) A written emission statement containing the information required in 06-096 CMR 137.

Reports and questions should be directed to:

Attn: Criteria Emission Inventory Coordinator
Maine DEP
Bureau of Air Quality
17 State House Station
Augusta, ME 04333-0017 Phone: (207) 287-2437

The emission statement must be submitted by the date specified in 06-096 CMR 137.

(23) **Air Toxics Emission Statement**

If Geneva Energy exceeds the thresholds for HAPs listed in Appendix A of 06-096 CMR 137 in an inventory year, in accordance with 06-096 CMR 137 the licensee shall report, every three years (2005, 2008, 2011, etc.) or as otherwise stated in 06-096 CMR 137, the information necessary to accurately update the State's toxic air pollutants emission inventory in a format prescribed by the Department containing the information required in 06-096 CMR 137.

NOTE: Based on AP-42 emission factors for fuel burning equipment, Geneva Energy will most likely exceed the 06-096 CMR 137 thresholds of HAPs based on fuel burning alone should the facility exceed the firing of 250 tons of wood waste (50% moisture) in a calendar year.

Reports and questions should be directed to:

Attn: HAP Inventory Coordinator
Maine DEP
Bureau of Air Quality
17 State House Station
Augusta, ME 04333-0017 Phone: (207) 287-2437

[06-096 CMR 137]

DONE AND DATED IN AUGUSTA, MAINE THIS DAY OF 2007.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:_____
DAVID P. LITTELL, COMMISSIONER

The term of this license shall be five (5) years from the signature date above.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: November 20, 2007
Date of application acceptance: November 26, 2007

Date filed with the Board of Environmental Protection: _____

This Order prepared by Kathleen E. Tarbuck, Bureau of Air Quality.